3.3.8.8 Ephemeral Ponds

3.3.8.8.1 Community Overview

These ponds are depressions with impeded drainage (usually in forest landscapes), that hold water for a period of time following snowmelt and spring rains but typically dry out by mid-summer. Common wetland plants found in this community (as well as other types) include yellow water crowfoot, mermaid weed, Canada bluejoint grass, floating manna grass, spotted cowbane, smartweeds, orange jewelweed, and sedges. They flourish with productivity during their brief existence and provide critical breeding habitat for certain invertebrates, as well as for many amphibians such as wood frogs and salamanders. They also provide feeding, resting and breeding habitat for songbirds and a source of food for many mammals. Ephemeral ponds contribute in many ways to the biodiversity of a woodlot, forest stand and the larger landscape. There have been many definitions and synonyms for the term ephemeral pond (e.g., "vernal pool"). However, they all broadly fit into a community context by the following attributes: their placement in woodlands, isolation, small size, hydrology, length of time they hold water, and composition of the biological community (lacking fish as permanent predators).

Trees adjacent to ephemeral ponds provide a variety of benefits such as maintaining cool water temperatures, preventing premature drying, and adding to the food web. The annual input of leaves from trees around the pool support a detritus-based food web and a variety of invertebrates that are part of that food web.

3.3.8.8.2 Vertebrate Species of Greatest Conservation Need Associated with Ephemeral Ponds

Sixteen vertebrate Species of Greatest Conservation Need were identified as moderately or significantly associated with ephemeral ponds (Table 3-189).

Table 3-189. Vertebrate Species of Greatest Conservation Need that are (or historically were) moderately or significantly associated with ephemeral pond communities.

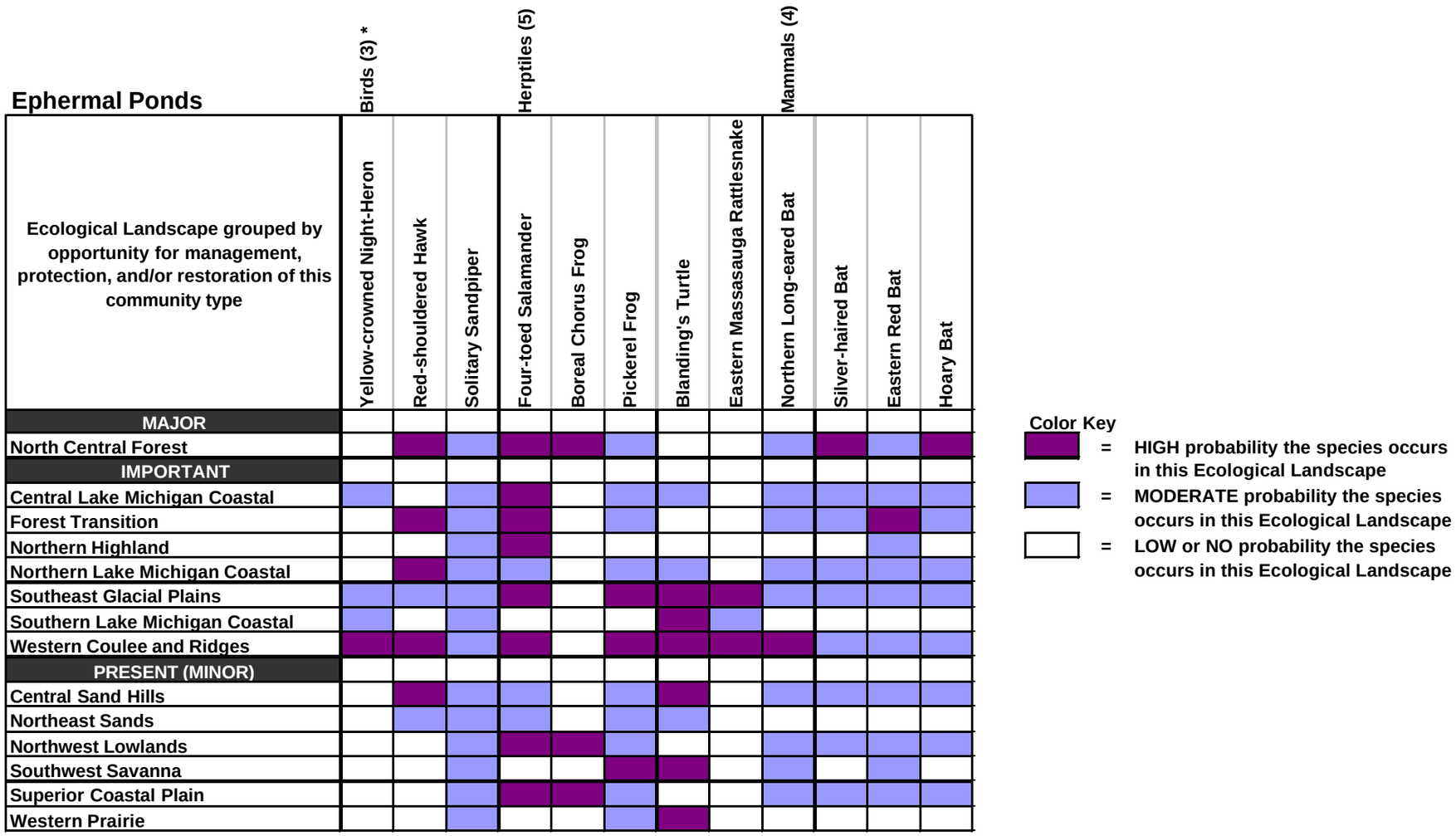
Species Significantly Associated with Ephemeral Ponds
Birds
Yellow-Crowned Night-heron
Red-shouldered Hawk
Solitary Sandpiper
Herptiles
Four-toed Salamander
Boreal Chorus Frog
Pickerel Frog
Blanding's Turtle
Eastern Massasauga Rattlesnake
Mammals
Northern Long-eared Bat
Silver-haired Bat
Eastern Red Bat
Hoary Bat
Species Moderately Associated with Ephemeral Ponds
Birds
Rusty Blackbird
Herptiles
Mink Frog
Wood Turtle
Mammals
Woodland Jumping Mouse

In order to provide a framework for decision-makers to set priorities for conservation actions, the species identified in Table 3-189 were subject to further analysis. The additional analysis identified the best opportunities, by Ecological Landscape, for protection, restoration, and/or management of both ephemeral ponds and associated vertebrate Species of Greatest Conservation Need. The steps of this analysis were:

- Each species was examined relative to its probability of occurrence in each of the 16 Ecological Landscapes in Wisconsin. This information was then cross-referenced with the opportunity for protection, restoration, and/or management of ephemeral ponds in each of the Ecological Landscapes (Tables 3-190 and 3-191).

- Using the analysis described above, a species was further selected if it had both a significant association with ephemeral ponds and a high probability of occurring in an Ecological Landscape(s) that represents a major opportunity for protection, restoration and/or management of ephemeral ponds. These species are shown in Figure 3-46.

Table 3-190. Vertebrate Species of Greatest Conservation Need that are (or historically were) *significantly* associated with ephemeral pond communities and their association with Ecological Landscapes that support ephemeral ponds.



Ephermal Ponds	Birds (3) *			Herptiles (5)					Mammals (4)			
Ecological Landscape grouped by opportunity for management, protection, and/or restoration of this community type	Yellow-crowned Night-Heron	Red-shouldered Hawk	Solitary Sandpiper	Four-toed Salamander	Boreal Chorus Frog	Pickerel Frog	Blanding's Turtle	Eastern Massasauga Rattlesnake	Northern Long-eared Bat	Silver-haired Bat	Eastern Red Bat	Hoary Bat
MAJOR												
North Central Forest		H	M	H	H	M			M	H	M	H
IMPORTANT												
Central Lake Michigan Coastal	M		M	H		M	M		M	M	M	M
Forest Transition		H	M	H		M			M	M	H	M
Northern Highland			M	H							M	
Northern Lake Michigan Coastal		H	M	M		M	M		M	M	M	M
Southeast Glacial Plains	M	M	M	H		H	H	H	M	M	M	M
Southern Lake Michigan Coastal	M		M				H	M				
Western Coulee and Ridges	H	H	M	H		H	H	H	H	M	M	M
PRESENT (MINOR)												
Central Sand Hills		H	M	M		M	H		M	M	M	M
Northeast Sands		M	M	M		M	M					
Northwest Lowlands			M	H	H	M			M	M	M	M
Southwest Savanna			M			H	H		M		M	
Superior Coastal Plain			M	H	H	M			M	M	M	M
Western Prairie			M			M	H					

Color Key

H = HIGH probability the species occurs in this Ecological Landscape

M = MODERATE probability the species occurs in this Ecological Landscape

= LOW or NO probability the species occurs in this Ecological Landscape

*** The number shown in parentheses is the number of Species of Greatest Conservation Need from a particular taxa group that are included in the table. Taxa groups that are not shown did not have any Species of Greatest Conservation Need that met the criteria necessary for inclusion in this table.**

Table 3-191. Vertebrate Species of Greatest Conservation Need that are (or historically were) *moderately* associated with ephemeral pond communities and their association with Ecological Landscapes that support ephemeral ponds.

Ephermal Ponds	Birds (1)*	Herptiles (2)		Mammals (1)
Ecological Landscape grouped by opportunity for management, protection, and/or restoration of this community type	Rusty Blackbird	Mink Frog	Wood Turtle	Woodland Jumping Mouse
MAJOR				
North Central Forest				
IMPORTANT				
Central Lake Michigan Coastal				
Forest Transition				
Northern Highland				
Northern Lake Michigan Coastal				
Southeast Glacial Plains				
Southern Lake Michigan Coastal				
Western Coulee and Ridges				
PRESENT (MINOR)				
Central Sand Hills				
Northeast Sands				
Northwest Lowlands				
Southwest Savanna				
Superior Coastal Plain				
Western Prairie				

Color Key

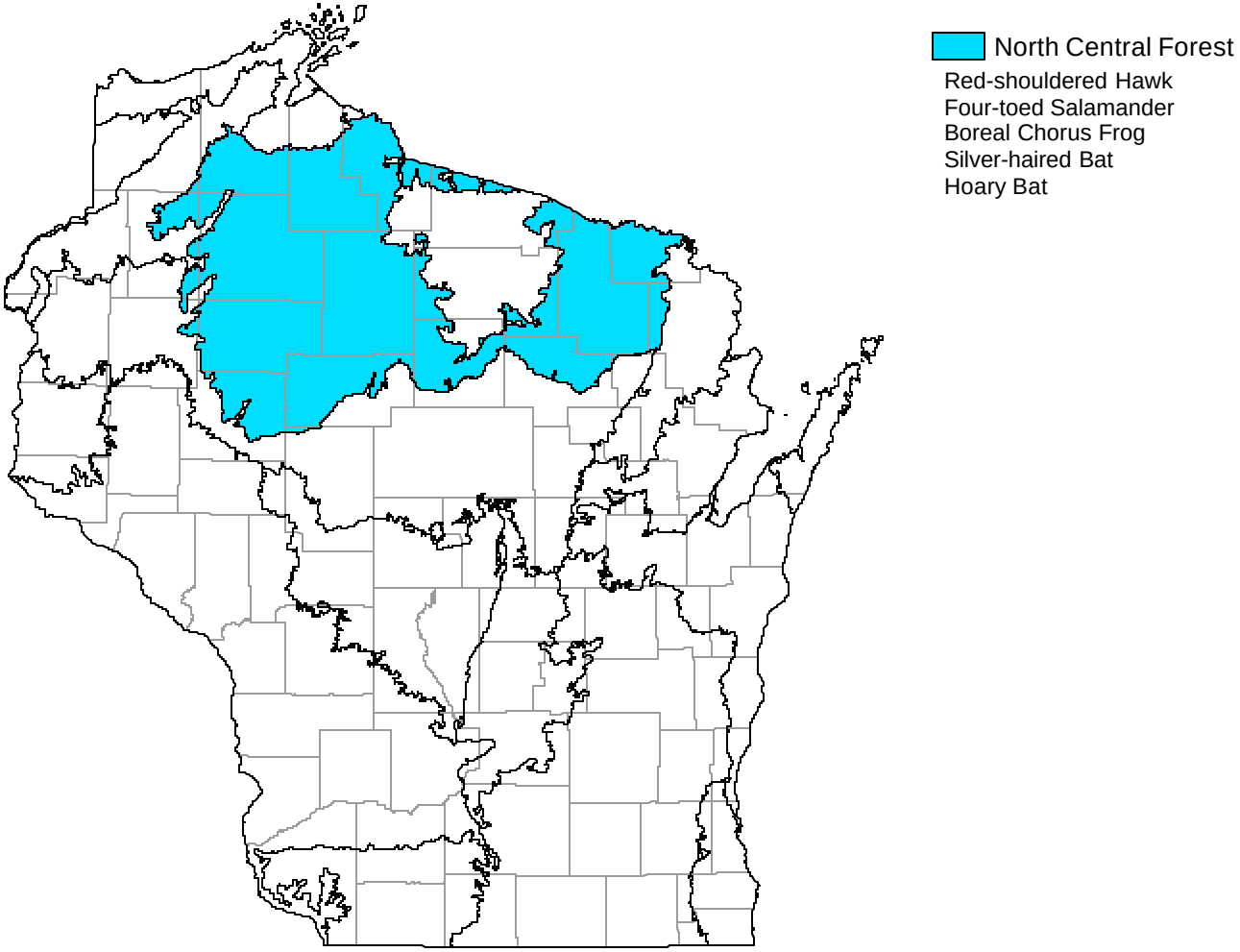
= HIGH probability the species occurs in this Ecological Landscape

= MODERATE probability the species occurs in this Ecological Landscape

= LOW or NO probability the species occurs in this Ecological Landscape

*** The number shown in parentheses is the number of Species of Greatest Conservation Need from a particular taxa group that are included in the table. Taxa groups that are not shown did not have any Species of Greatest Conservation Need that met the criteria necessary for inclusion in this table.**

Figure 3-46. Vertebrate Species of Greatest Conservation Needthat have *both* a significant association with ephemeral ponds *and* a high probability of occurring in an Ecological Landscape(s) that represents a major opportunity for protection, restoration and/or management of ephemeral ponds.



3.3.8.8.3 Threats and Priority Conservation Actions for Ephemeral Ponds

3.3.8.8.3.1 Statewide Overview of Threats and Priority Conservation Actions for Ephemeral Ponds

The following list of threats and priority conservation actions were identified for ephemeral ponds in Wisconsin. The threats and priority conservation actions described below apply to all of the Ecological Landscapes in Section 3.3.8.8.3.2 unless otherwise indicated.

Threats and Issues

- Past land use practices (Cutover-era logging, agriculture) have resulted in the loss of or damage to this community.
- Unsustainable forest management practices can result in soil compaction, rutting, and erosion. The practice of piling slash in ephemeral ponds can reduce their utility to some organisms and ultimately lead to filling them prematurely.
- Forest fragmentation and development have also resulted in the loss of this community and its utility to species that breed in the ponds and spend the growing season in the surrounding forest.
- Invasive species can be a problem in some areas, especially on pond margins, where flooding might not occur every year (i.e., buckthorns, Asian honeysuckles, moneywort, and garlic mustard.
- Motorized recreation and high road densities contribute to rutting and alteration of the community.
- Long-term changes in climate can affect the existence of this community type and the species that rely on this temporal community.
- Many ephemeral ponds have not been inventoried or mapped due to their tendency toward relatively small sizes and seasonal occurrence. As a result, they may go overlooked and be inadvertently missed during regulatory processes.

Priority Conservation Actions

- Apply Best Management Practices for Water Quality during forest harvest operations.
- Emphasize land management that protects against the introduction of invasive species. If patches of invasive plants can be identified early, control measures are more likely to succeed.
- Limit motorized recreation near ephemeral pools and plan infrastructure with protection measures in mind.
- With each forest management plan, incorporate buffers and maintain long-lived tree species around ponds. Also consider leaving connecting strips from riparian zones to the pond for amphibian travel corridors. Prior to establishing a timber sale, ephemeral ponds should be mapped out.
- Stronger guidelines are needed for foresters and other managers to clarify the ecological values of this community and develop the most appropriate management practices.
- There is a statewide need for more comprehensive information on ephemeral ponds, including inventory, mapping, and monitoring of this community. Vascular plants, invertebrates, herptiles, and abiotic attributes should all be targets of broader survey efforts.
- Better inventory techniques and guidelines should be developed to ensure that ephemeral ponds are afforded appropriate regulatory consideration.

3.3.8.8.3.2 Additional Considerations for Ephemeral Ponds by Ecological Landscape

Special considerations have been identified for those Ecological Landscapes where major or important opportunities for protection, restoration, and/or management of ephemeral pond exist. Those considerations are described below and are in addition to the statewide threats and priority conservation actions for ephemeral ponds found in Section 3.3.8.8.3.1.

Additional Considerations for Ephemeral Ponds in Ecological Landscapes with ***Major*** Opportunities for Protection, Restoration, and/or Management

North Central Forest

Ephemeral ponds are found within the northern dry, northern dry-mesic, and northern mesic community types and are most abundant in the latter type. Flambeau River State Forest (Sawyer, Rusk and Price Counties), Chequamegon-Nicolet National Forests and many county forests contain ephemeral ponds within a forest matrix. Ephemeral ponds are often found in relation to other water features on the landscape, such as the Wisconsin, Flambeau, Chippewa, Bad, and White Rivers. Invasive plants are becoming a threat especially where motorized recreation occurs within this community. If detected early, small isolated patches of invasive plants may successfully be controlled. Forest management provides an opportunity to identify these isolated communities and protect them prior to timber sale establishment.

Additional Considerations for Ephemeral Ponds in Ecological Landscapes with ***Important*** Opportunities for Protection, Restoration, and/or Management

Central Lake Michigan Coastal

Loss of forest cover, forest fragmentation, and widespread development have altered this community.

Forest Transition

Loss of forest cover, forest fragmentation, and development have altered this community. Because of the fine textured soils present in some parts of this Ecological Landscape, there may be locally important opportunities to manage for and protect this habitat.

Northern Highland

Ephemeral ponds are found within a heterogeneous forest matrix of northern dry, northern dry-mesic and northern mesic community types, and are usually associated with other wetland features, i.e., corridors connecting to ponds.

Northern Lake Michigan Coastal

The loss of forest cover, forest fragmentation, and development have altered this community and diminished management opportunities.

Southeastern Glacial Plains

Loss of forest cover, forest fragmentation, development, conversion to stormwater and landscape ponds, and silting in from sediment-laden runoff have altered this community and greatly reduced opportunities for management. The Northern Unit of the Kettle Moraine State Forest contains some good examples of this type. There is a need for better inventory and mapping of remaining ephemeral pond occurrences in this landscape.

Southern Lake Michigan Coastal

Loss of forest cover, forest fragmentation, conversion to stormwater and landscape ponds, silting in from sediment-laden runoff, and widespread, intensive development have altered this community. Management opportunities are limited to a few remnant, isolated forest patches. There are some opportunities to

incorporate ephemeral ponds into forest restoration efforts due to the widespread presence of loamy and clayey soils with a propensity for seasonal ponding.

Western Coulee and Ridges

Ephemeral ponds are common in the Helena Marsh and Goodwiler-Kendal Slough (Iowa County), and the Mazomanie Bottoms (Dane County) on terraces bordering the Wisconsin River and other aquatic features. Additional inventory for this type is badly needed in this Ecological Landscape.